

# WEST BOGGS CREEK RESERVOIR

2000 Fish Management Report

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## INTRODUCTION

West Boggs Creek Reservoir is a 622-acre multi-purpose impoundment located in West Boggs Park north of Loogootee, Indiana. The lake was constructed in 1971 with federal funds appropriated under Public Law 566. Operation of the reservoir and park is administered by the Martin and Daviess County Park Boards. Facilities at the park include a boat ramp, boat rental concession, boat mooring sites, shoreline fishing area, disabled fishing pier, beach, and campground. Fees are assessed both for entrance to the park and use of the boat ramp.

As often occurs at new reservoirs, West Boggs provided excellent fishing for several years after impoundment. During 1979 it was determined that gizzard shad had become established in the lake. By 1983, the shad population was approaching its maximum level and having some negative impacts on the sport fishery. These impacts included competition with more desirable species and diversion of bass predation away from sunfish and carp populations. To help utilize some of the abundant shad, a stocking of 7,120 hybrid striped bass was made in 1984. A fisheries survey in 1985 indicated the stocking was only partially successful. A 1987 survey revealed shad abundance had declined significantly, but there was a corresponding increase in yellow bass and carp abundance.

In 1994 a complete renovation of the watershed and the lake was conducted with the target species being gizzard shad, carp and yellow bass. This required over two years of planning and included two public meetings, complete watershed reconnaissance, a fish survey, lake drawdown, fish salvage operation, complete fish eradication, and restocking of a balanced combination of game fish. Largemouth bass, bluegill, redear sunfish, channel catfish, and black crappie were stocked between 1994 and 1996. In 1997, a complete fisheries survey found the fishery to be in excellent condition with no undesirable species collected. The present survey was conducted on June 19 to 22, 2000. Survey effort consisted of 2.0 hours of D.C. night electrofishing, 12 overnight gill net sets and 5 overnight trap net sets.

## RESULTS AND DISCUSSION

Water quality measurements at the time of the survey were normal for a eutrophic reservoir of this size at this time of year. Dissolved oxygen was adequate for game fish survival to a depth of 6 feet. Water transparency as measured with a Secchi disk was 5 feet. Filamentous algae was abundant in the coves and throughout the shallow portions of the main lake. Planktonic algae, while evident, was not excessive at the time of the survey. Aquatic vegetation was not abundant at the time of sampling. Some small beds of aquatic vegetation were visible and consisted primarily of small pondweed. Donan Engineering, a consulting firm, was contracted by the Park Board to study the water quality of the lake to characterize changes in the reservoir since the renovation. Donan also quantified aquatic vegetation in the lake. The findings of this study will be incorporated into a future report.

Fish sampling efforts produced 1,430 fish weighing an estimated 738.50 pounds and representing nine species and one hybrid. Largemouth bass were most abundant by number (43.8%), followed by bluegill (34.8%), redear sunfish (11.5%), green sunfish (4.2%), channel catfish (2.7%), black bullhead (1.1%), and black crappie (1.0%). The remaining fish (yellow bullhead, hybrid sunfish, and golden shiner) accounted for less than 1% of the sample by number.

The largemouth bass sample consisted of 626 fish ranging from 1.4 to 18.6 inches in length. Bass were first by number and weight compared to the 1991 survey where largemouth bass were ninth by number (1.6%) and sixth by weight (5.9%)(Andrews 1992). The proportional stock density (PSD) for largemouth bass was 36.1. Bass 14 inches and larger comprised 9.9% of the sample. Largemouth bass continue to exhibit excellent recruitment with 16.5% of the bass collected being young-of-year. Largemouth bass growth was above average compared to bass growth at similar impoundments. West Boggs largemouth bass were 2.7 inches larger than the district average at age 4.

A total of 497 bluegill were collected with individuals ranging from 0.7 to 9.9 inches in length. Harvestable size bluegill, those 6 inches and larger, comprised 35.2% of the fish collected. The PSD for bluegill was 50.1. Bluegill 8 inches and larger comprised 15.1% of the sample compared to 0.3% in 1991. Bluegill growth was above average compared to bluegill growth at other district impoundments. Bluegill were 1.8 inches larger at age 4 than bluegill at similar lakes.

The redear sunfish sample consisted of 165 fish ranging from 2.7 to 11.9 inches in

length. Harvestable size redear, those 6 inches and larger, comprised 93.3% of the collection. Redear 8 inches and larger made up 82.4% of the sample. Redear growth was above average compared to redear growth at similar impoundments. At age 4, West Boggs redear were 2.0 inches larger than redear of the same age at similar district lakes.

A total of 39 channel catfish were collected ranging from 13.5 to 27.9 inches in length. Seventy percent of the channel catfish collected were over 20 inches in length. This implies that channel catfish harvest is not excessive.

A total of 15 black crappie were collected that ranged from 1.6 to 9.7 inches in length. Three age classes were represented in the sample. Black crappie greater than 6 inches in length made up 60.0% of the sample. Crappie growth was above average when compared to crappie growth at similar impoundments.

Other fish collected in the sample included 60 green sunfish, 16 black bullhead, 10 yellow bullhead, one hybrid sunfish, and one golden shiner. These fish are not detrimental to the fishery and, in the case of green sunfish and bullheads, may provide additional fishing opportunities for anglers.

## CONCLUSIONS AND RECOMMENDATIONS

The West Boggs Creek Reservoir fishery is in excellent condition. The lake renovation and subsequent restocking has produced a highly successful fishery. Anglers should find ample opportunities to catch both size and numbers of most game fish species present. The current management strategy at West Boggs Reservoir is to provide a balanced fishery. Willis et al. (1993) identifies a target PSD for largemouth bass and bluegill of 40-70 and 20-60, respectively for this management strategy. The current largemouth bass PSD of 36.1 and bluegill PSD of 50.1 indicates that this objective is close to being met.

Largemouth bass were the most abundant species in the survey and were collected at a rate of 294.0 fish/hour of night electrofishing. Even at this high density, West Boggs largemouth bass continue to exhibit above average growth. The absence of significant numbers of legal size bass is due primarily to high harvest. An angler survey of West Boggs conducted in 1999 reported 5,156 largemouth bass (8.3 bass/acre) harvested over the seven month creel period (Sapp and Schoenung 2000). This indicates that many bass are being harvested as soon as they reach the legal size limit of 14 inches. An increased bass size limit would likely be successful at protecting additional bass from harvest.

However, largemouth bass densities are already high and further protection could jeopardize the predator/prey balance of the fishery.

The bluegill population at West Boggs is in excellent condition with large quantities of harvestable fish. The 1999 creel survey (Sapp and Schoenung 2001) indicated that anglers were harvesting bluegill at a rate of over 100 fish/acre. The above average growth identified in this survey as well as the number of quality size fish collected indicates that this level of exploitation should be sustainable.

The remaining game fish species at West Boggs appear to be in excellent condition as well. Redear sunfish are providing a quality fishing opportunity for West Boggs panfish anglers with fish up to 11.9 inches in length collected. Black crappie are also present in fair numbers with many fish of harvestable size. The low number of crappie collected is probably an artifact of the time of sampling. As water temperatures warm, crappie tend to move to deeper water where they are less susceptible to the collection gear. The 1999 angler survey indicated that crappie were the second most abundant species harvested at West Boggs. Channel catfish appear to be underutilized by West Boggs anglers with many fish exceeding 20 inches in length. The excellent fishing opportunities for other game species at West Boggs may be contributing to underutilization of channel catfish.

The lack of aquatic vegetation at West Boggs Creek Reservoir remains an area of concern. While some aquatic vegetation was evident at the time of sampling, algae continues to dominate the lake. The presence of large algae mats during the summer continues to impede angler access and the establishment of rooted aquatic vegetation. High nutrient loading during rain events may be selecting for algal vegetation. Algae blooms limit light penetration which continues to slow the establishment of aquatic macrophytes. Algae blooms were cited as a probable contributing factor to a small fish kill in the fall of 2000 in an upper bay of the lake.

The channel catfish stockings at West Boggs Creek Reservoir should continue at the current rate of 10 fish/acre (6220 channel catfish) stocked every other year. These stockings are necessary to provide a fishable population of this species. To monitor the fishery, a creel survey is recommended for the year 2003 with another fisheries survey scheduled for the year 2004.

The current access fees charged for admittance into West Boggs Creek Park are \$5.00 per day (\$3.00 park entrance, \$2.00 boat launch). Future management of the fishery will be partially dependant upon the level of these fees.

## LITERATURE CITED

- Andrews S. J. 1992. West Boggs Creek Reservoir fish management report, 1991.  
Fisheries Section, Indiana Department of Natural Resources. Indianapolis. 19pp.

Sapp, S. A. and B. M. Schoenung. 2001. Fishing pressure, fish harvest, and economic value of West Boggs Creek Reservoir Fishery, 1999. Fisheries Section, Indiana Department of Natural Resources. Indianapolis 12pp.

Willis D. W., B. R. Murphy, and C. S. Guy, 1993. Stock density indices: development, use, and limitations. Reviews in Fisheries Science 1:203-222.

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Date: January 23, 2001

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Date: April 26, 2001